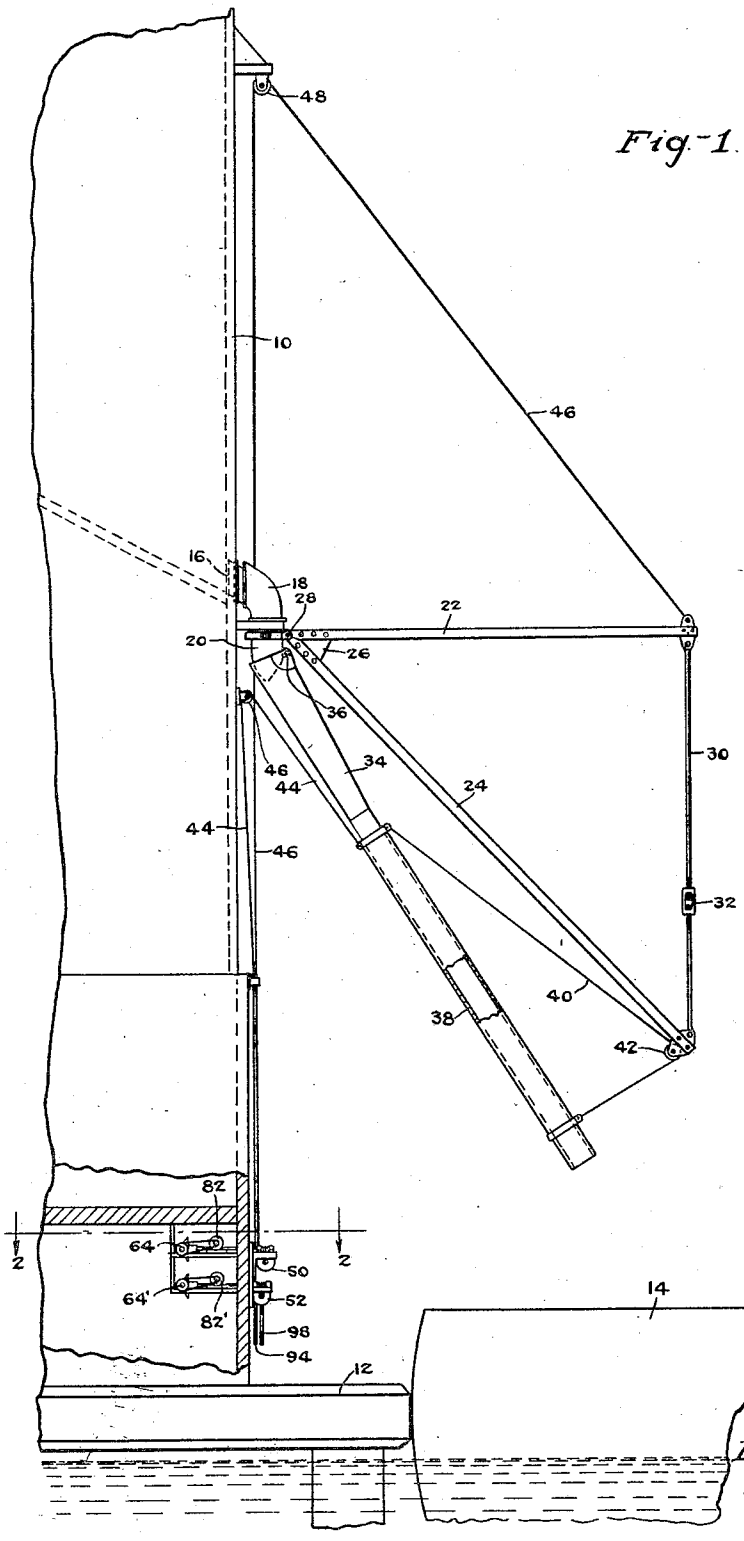
Feb. 3, 1931. H. G. ONSTAD 1,791,371

LOADING SPOUT DEVICE

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Fig. 1.



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Fig-2

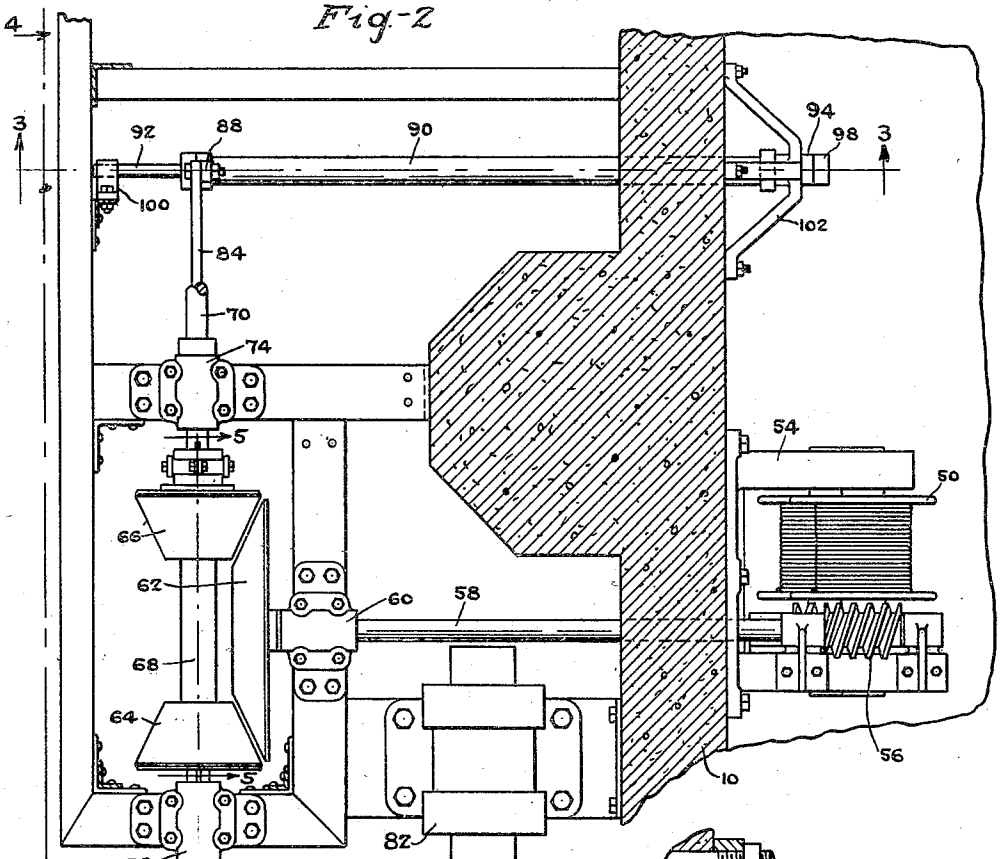


Fig-3

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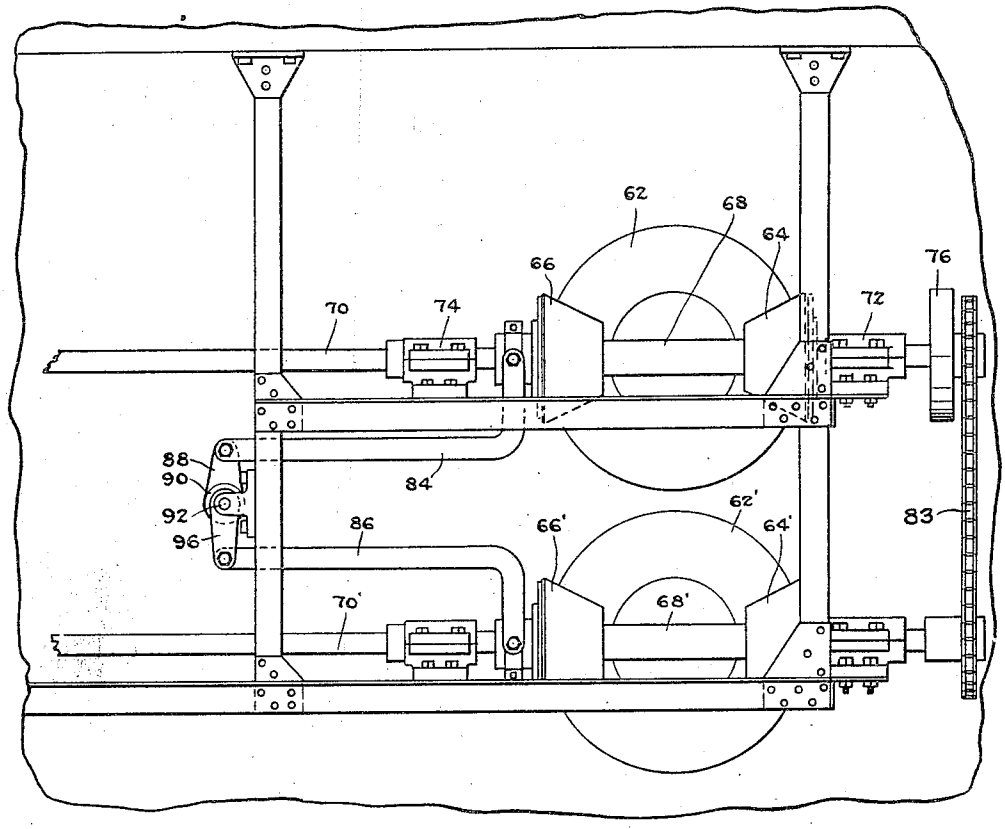


Fig. -4

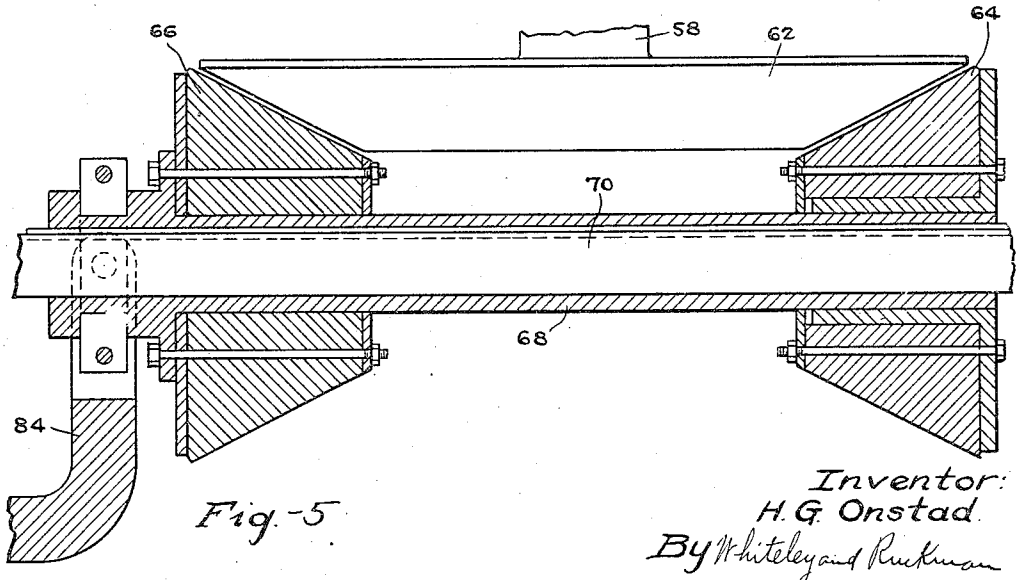


Fig. -5

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UNITED STATES PATENT OFFICE

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LOADING-SPOUT DEVICE

Application filed March 23, 1929. Serial No. 349,356.

My invention relates to loading spout devices, and while intended more particularly for use as a dock spout for loading grain or other material into boats from buildings or bins located on docks, it will be understood that it is susceptible of use for loading grain or other material into other containers such as freight cars. An object of the invention is to provide a device of this character in which both the inclination and the length of the spout may be varied as desired to effect the loading operation to the best advantage. Another object is to provide power operated means whereby the inclination of the spout may be readily varied and to provide independently controllable power operated means whereby the length of the spout may be readily varied. Another object is to so construct both of the power-operated mechanisms that the spout will retain the position into which it is adjusted both in regard to inclination and length until one or both of the mechanisms are again operated for changing the setting of the spout.

The full objects and advantages of my invention will appear in connection with the detailed description thereof, and the novel features of my inventive idea will be particularly pointed out in the claims.

In the accompanying drawings which illustrate a practical embodiment of my invention, Fig. 1 is a sectional elevational view showing the delivery end of the spout positioned above a boat. Fig. 2 is an enlarged view in horizontal section on the line 2—2 of Fig. 1. Fig. 3 is a view in vertical section on the line 3—3 of Fig. 2. Fig. 4 is an elevational view shown from the line 4—4 of Fig. 2. Fig. 5 is a further enlarged view in section on the line 5—5 of Fig. 2.

In the exemplification of my invention shown in the drawings, the numeral 10 designates a wall of a building located on a dock 12 to which a boat 14 is tied up. A delivery pipe 16 leads through the wall 10 and is secured to the upper section 18 of a downwardly extending gooseneck having a lower section 20 swiveled to the upper section. An upper boom member 22 and a lower boom member 24 are secured together at their inner ends in angular relation by a plate 26. The joined inner ends of the two boom members are pivoted at 28 to the lower gooseneck section 20 while the separated outer ends of the boom members are connected by a rod 30 having a turn buckle 32 by which the tensioning effect of the rod may be adjusted. A spout member 34 is pivoted at its upper end on a pivot 36 carried by an ear extending out from the section 20, the lower end of this section being curved so as to fit into the member 34 for different inclinations of the latter. A second spout member 38 is telescoped on the spout member 34 so as to be capable of sliding movement up and down thereon. A cable 40 secured at one end to the upper end of the spout member 38 and secured at its other end to the lower end of this spout member passes over a pulley 42 carried by the lower end of the boom 24. The cable 40 serves to maintain the spout member 38 at the desired inclination as it is slid up and down to change the length of the spout. Secured to the upper end of the spout member 38, there is a cable 44 which passes over a pulley 46 secured to the building. By pulling on the cable 44, the spout member 38 will be slid upwardly on the spout member 34 and when the cable 44 is released, the spout member 38 will slide downwardly by gravity. In this manner, the length of the spout may be varied as found desirable. Secured to the outer end of the boom 22, there is a cable 46 which passes over a pulley 48 secured to the building. By pulling on the cable 46, the booms 22 and 24 will be raised and when the cable 46 is released, the booms will lower by gravity. The spout members 34 and 38 will be conjointly swung up and down with the boom members. The lower portion of one of the cables as for instance the cable 46 winds on a drum 50 while the lower portion of the other cable as for instance the cable 44 winds on a drum 52, these two drums being mounted in brackets 54 secured to the building. The two drums are operated in the same manner and hence a detailed description in regard to one of them may be considered as also applying to the other. Worm gearing 56 is interposed between the shaft of the drum 50 and a shaft

58 extending at right angles thereto into the building where the latter shaft is mounted in a bearing 60 and carries a bevel gear 62 on its inner end. The gear 62 may be either a friction gear or a toothed gear and is adapted to be engaged by either one of two diametrically disposed bevel gears 64 and 66 secured to the respective ends of a sleeve 68 which is feathered on a shaft 70 as shown in Fig. 5. The shaft 70 is mounted in bearings 72 and 74 as shown in Figs. 2 and 4. Secured to the outer end of the shaft 70, there is a wheel 76 which is driven by a belt or chain drive 78 trained around a wheel 80 carried by the shaft of a motor 82 as shown in Fig. 2. By referring to Fig. 4, it will be understood that the lower drum 52 is adapted to be driven in a similar manner through a bevel gear 62′ engageable by bevel gears 64′ and 66′ secured to a sleeve 68′ feathered on a shaft 70′ which is driven from the shaft 70 by a sprocket chain 83. The sleeve 68 is engaged by the inner end of a shifter bar 84 while the sleeve 68′ is engaged by the inner end of a shifter bar 86. The outer end of the bar 84 is pivoted to a crank arm 88 secured to a sleeve 90 rotatably mounted on a rotatable rod 92. A handle 94 secured to the sleeve 90 serves to rotate it and thereby bring one or the other of the gears 64 and 66 into engagement with the gear 62 according to the direction in which the handle 94 is moved. The outer end of the bar 86 is pivoted to a crank arm 96 secured to the rotatable rod 92. A handle 98 secured to the rod 92 serves to rotate it and thereby bring one or the other of the gears 64′ and 66′ into engagement with the gear 62′ according to the direction in which the handle 98 is moved. By referring to Figs. 2 and 3, it will be seen that the rotatable rod 92 is mounted in a bearing 100 inside the building and in a bracket bearing 102 secured to the outside of the building, and by reference to these two figures as well as to Fig. 1, it will be seen that the two handles 94 and 98 are close together outside of the building so that the position of the spout member 38 may be readily observed and controlled.

The operation and advantages of my invention will now be obvious. When the drum on which the cable 46 is wound is rotated in the proper direction, this cable will be pulled and the boom members 22 and 24 will be lifted around the pivot 28 as a center, thereby bodily lifting the spout members 34 and 38 around the pivot 36 as a center. When the rotation of this drum is stopped, the booms and spout members will be kept in the position into which they have been moved on account of the worm gearing acting as a stop. When this drum is rotated in the other direction to pay out the cable, the booms and spout members will swing down under the action of gravity. When the drum on which the cable 44 is wound is rotated in the proper direction, this cable will be pulled and the spout member 38 will be slid upwardly on the spout member 34. When the rotation of this drum is stopped, the spout member 38 will be kept in its upwardly telescoped position on account of the worm gearing acting as a stop. When the rotation of this drum is reversed to pay out the cable, the spout member 38 will slide down on the spout member 34 by gravity. The shiftable cable connection 40 permits the spout member 38 to slide in either direction while supported by the boom. By properly operating the two drums, the spout can be placed in any desired position for delivery of material into the boat or other container. When the spout is not in use, the cables 44 and 46 may be paid out so that the lower end of the spout member 38 will rest upon the dock and the boom may be swung around against the building on account of the swivel connection between the two sections of the goose neck.

I claim:

A loading spout device comprising two boom members having their inner ends secured together in angular relation in a vertical plane and pivotally supported for swinging movement in a vertical plane, an adjustable connection between the outer ends of said boom members, a spout pivoted at its upper end and consisting of telescoping members, a pulley carried by the lower end of said boom members, a cable passing around said pulley and having its two ends attached respectively to the upper and lower portion of the lower one of said telescoping members for supporting said member from said boom, power-operated mechanism whereby said boom members may be raised and lowered to vary the inclination of said spout, power operated mechanism whereby said spout may be more or less telescoped to vary its length, and means for independently controlling the operation of said mechanisms.

In testimony whereof I hereunto affix my signature.

HENRY G. ONSTAD.